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The Effect of Dance and Team Sports on Mental Health

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Abstract

This study uses the World Health Organization (WHO) model of physical, social, and mental health to examine the effect of participating in dance and team sports during childhood on mental health in adulthood. Prior research has suggested that physical activity is strongly integrated with mental and social health and therefore is a protective factor against mental illness. However, there is not sufficient research comparing the differences among dance and team sports on mental health. This study hypothesized that dancers would experience increased positive mental health in adulthood than team sports due to the basis of physical activity in dance, and the distinguishing factors of dance that are not experienced in team sports such as emotional expression, creativity, and performance. This study was completed through an anonymous survey 16 item survey administered to women's sports and dance teams in Massachusetts colleges. The results of this study indicate that dance and team sports display no statistically significant evidence of protecting against stress. Instead, this study suggests that stressors from college such as increased responsibility, independence, and physical separation from an individual's support system may be increasing stress.

Domains of Health

Regular participation in physical activity has been shown to improve the likelihood of living a healthy, high quality life (Eime et al., 2013). The definition of health is categorized into three domains of physical, social, and mental health (World Health Organization, 2014). These domains are integrated into our daily lives through our choices, activities, and thoughts. This research will expand upon the component of physical activity and the effect on its attachment to the other domains. The World Health Organization (2017) defines physical activity as any bodily movement produced by skeletal muscles that requires energy expenditure – including activities undertaken while working, playing, carrying out household chores, travelling, and engaging in recreational pursuits. Physical activity has been suggested by the World Health Organization, a world wide organization, to alleviate symptoms of depression and to be fundamental to energy in addition to the numerous physical benefits (World Health Organization, 2017). One of the most common types of physical activity, encouraged from a young age to adulthood, is playing sports. Empirical studies have demonstrated that sports participation is associated with higher levels of physical activity in adulthood (Dodge & Lambert, 2009). As discussed, physical activity is one domain of overall health, and is integrated with social and mental health to create a healthy individual (World Health Organization, 2006) This research will focus on the factor of physical health through team sports and dance and how it influences overall health.

Physical Activity and Mental Health

Mental illness is a broad term that is generally used to categorize certain diagnoses that indicate abnormalities or impairment in functioning. Although everyone experiences emotional changes throughout their life, mental health conditions concern changes in cognition, emotions,

and mood (National Alliance on Mental Illness, 2017). Approximately 1 in 5 adults in the United States are predicted to experience a mental illness in their lifetime, and 1 in 25 adults are predicted to experience a serious mental illness that interferes with their daily life in any given year (National Alliance on Mental Illness, 2017). Additionally, it is predicted that 1 in 5 children have or will have a serious mental illness (National Alliance on Mental Illness, 2017). Of those children predicted to have a mental illness, 50% of all lifetime cases are predicted to begin at just 14 years old (National Alliance on Mental Illness, 2017). Symptoms that may challenge overall health, and specifically mental health, include depressive symptoms, high stress levels, and low self-ratings of mental health exclusively (Jewett et al., 2014). Mental health is a complicated subject due to the fact that illness can be caused by many biological, environmental, psychological, and social factors that are often beyond the control of the individual. When discussing mental health, factors that protect against mental illness are deemed protective factors, while factors that increase the likelihood of illness are risk factors (Liebenberg & Ungar, 2009). There are many protective factors for various diseases, such as geographical location, strong support systems, and heredity (Liebenberg & Ungar, 2009). Indeed, one protective factor that has been found by researchers is participation in physical activity (Jewett, et al., 2014). This review will explore the effectiveness of the protective factor of team sports, as well as dance, and the long term effect these factors may have on mental health in adulthood.

Sports, Physical Activity And Mental Health

Throughout childhood into adolescence, many individuals are encouraged to participate in team sports for various reasons. Most commonly, team sports provide social support, physical activity, and involve children positively within their community. Typically children do not

participate in team sports for solely mental health initiatives; however, they participate because it is fun and social. Team sports provide not only a social support system and sense of belonging in the community but also encourage physical activity, which is a protective factor for mental illness. As previously stated, those who participate in sports in adolescence are demonstrated to have a higher instance of physical activity in adulthood (Dodge and Lambert, 2009).

In a 2015 study conducted by Vella, Cliff, Magee, Okely (2015) 4,042 children ages 8-10 and their parents reported on the child's strengths and difficulties, and then participated in a two-year follow up. Through this research, sports participation was shown to be associated with increased physical and cognitive competence, self esteem, social skills, teamwork, discipline, responsibility, and empathy (Vella et al., 2015). Children who had dropped out of sports displayed greater internalizing problems than those who maintained regular participation (Vella et al., 2015). This research provides important insight that in a two year time span, children who discontinue sports participation have increased social and emotional problems (Vella et al., 2015). Therefore, a greater emphasis must be placed in athletic organizations to increase as well as maintain participation in the important age of pre-adolescence as there is an increased risk potential of psychiatric difficulties throughout the period of adolescence (Vella et al., 2015).

Dance, Physical Activity, and Mental Health

Although there is sufficient evidence on the benefit that participating in sports has on mental health, there is minimal empirical evidence on the effect that dance has on mental health in comparison to team sports. Participating in the art of dance is similar in many ways to sports, but also vastly different in others. One distinguishing characteristic is that dance has been used on patients with Parkinson's Disease and shown to have positive results for their treatment

(Edwards 2017). Additionally, advocates of dance are encouraging physical education programs in school to include dance as an addition to sports within their curriculums (Bajek, Richards, Andrew, & Ressler 2015). Dance incorporates aspects of emotional expression, performance, creativity, and intelligence in an artistic method while encouraging physical activity that sports do not equally convey (Bajek et al., 2015).

Although both team sports and dance are protective factors against mental illness, I hypothesize that the added artistic aspects of dance serve as an additional protective factor against mental illness. However, it is important to explore the risk factors that may reverse the positive mental health effects for both team sports and dance. For example, perceptions of pressure, immoral behavior, or negative views of the self may arise from team sports and dance and contribute to mental health problems (Vella et al., 2015). Although there are limitations from adverse effects that should be addressed, team sports and dance overall encourage physical activity in children. Specifically, athlete burnout is a major adverse effect of organized physical activity which encompasses emotional and physical exhaustion, reduced accomplishment, and sports devaluation (DeFreese and Smith, 2014). In a periodical published by Lafferty (2017), student ballerina Kathleen McGuire discusses that failures, self and organizational pressure, substance use, and especially injuries are adverse effects that arise from dance which can lead to serious depression and other mental illnesses. Despite the adverse effects, those that are persistently physically active throughout childhood and adolescence, especially throughout ages 9-18, are shown to be significantly more likely to be physically active, and correlationally healthy mentally and socially, as adults (Telama, Yang, Viikari, Välimäki, Wanne & Raitakari, 2005).

Symptoms of depression, high perceived stress levels, and low self ratings for mental health are all factors that can be reflective of poor mental health and often will originate during adolescence. In a 2014 study (Jewett et al., 2014) 23-40% of high school youth report high levels of depressive symptoms, “quite a bit” of stress, and poor self-reported mental health. Poor mental health typically moves across lifespan stages, and therefore protective factors must be used to limit mental illness from continuing into adulthood. To examine the connection of physical activity and mental health further, there are various neurobiological influences that contribute to the connection. Examples of these include the regulation of the hypothalamic-pituitary-adrenal axis, changes in neurotransmitters, and changes in brain circuitry. Psychologically, self-efficacy and self-concept are involved in this connection as completing physical activity can increase independence and help individuals with increased self-esteem which can profoundly protect against mental illness. Socially, physical activity provides interaction, belonging, and connectedness which improves mental health (Jewett et al., 2014).

In a 5 year longitudinal study conducted by Jewett et al. (2014), researchers recruited 853 secondary school students and examined the association between participation in school sports during adolescence and the effect it had on mental health in early adulthood. Twenty five percent of the 853 participants reported participation in a sport during each grade of secondary school. Through self reporting questionnaires sports participation, depressive symptoms, stress level, self reported mental health and covariates were measured (Jewett et al., 2014). Involvement in a school sport was found to be a statistically significant predictor of lower depression symptoms, lower perceived stress, and positive self-rated mental health (Jewett et al., 2014). This study

outlines the beneficial effect that sport participation in adolescence has on general mental health factors.

Current Study

The current study explored the effect of participating in team sports and dance throughout childhood and adolescence on mental health in adulthood. We hypothesized that participating in dance will display more positive mental health outcomes in adulthood than team sports. This hypothesis is due to the base of physical activity that is incorporated in both team sports and dance, but takes the additional distinguishing factors of dance into consideration.

Dance includes aspects of performance, creativity, intelligence and emotional expression that team sports do not equally convey (Bajek et al., 2015). Additionally, dance has been empirically suggested to teach life skills such as goal setting, perseverance through challenges, trying new things, and critical thinking (Bajek et al., 2015). Although team sports provide protective factors against mental health issues, dance has been claimed to increase access to embodied knowledge, or the body's emotional feedback systems (Duberg, Moller & Sunvisson, 2016). Dance has been suggested to be an oasis from stress, increase supportive togetherness in groups, create enjoyment and empowerment, create acceptance, allow participants to have an emotional expression, and allow individuals to trust in their own abilities (Duberg et al., 2016).

These distinguishing factors support the hypothesis that participating in dance during childhood is superior to physical activity as a factor that may affect mental health in adulthood. Although team sports incorporate physical activity, and team sports have been empirically proven to protect against mental health issues (Jewett et al., 2014), dance participation will

arguably display greater instances of improved mental health over team sports due to the distinguishing factors that are incorporated in dance participation.

Method

Participants

Thirty-seven participants were recruited (dance = 15; team sports = 19; Mean age= 19.5). All participants have ages within a range of 18-22 years. All participants were female and attended mid-size liberal arts colleges in the Northeast. Three participants were excluded from analyses because two participated in dance recreationally (while the remaining 12 participated in team dance) and one was removed for participating in both dance and team sports.

Materials

This research was completed through a 16-item survey which was disseminated using google forms (See Appendix A). The survey took approximately 2 minutes to complete. All responses were anonymous.

Procedure

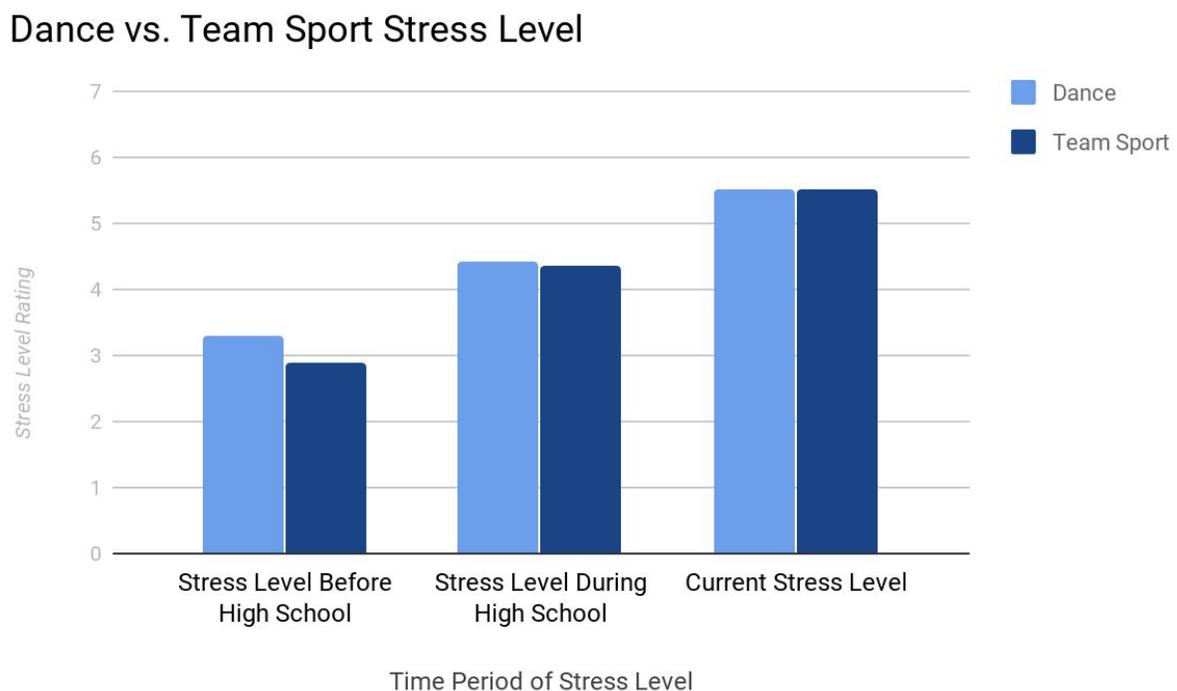
Participants were recruited from two colleges in Massachusetts through sending the survey to women's dance teams and women's sports teams. Participants were emailed the survey and voluntarily participated in this study.

Results & Discussion

After running a linear regression test it was determined that age is not a significant predictable factor regarding self reported levels of stress. The predictor model displays that there are no predictions for stress related to sports. Age may not be a predictable variable for the young adults in this study as the age range they are in consists of similar life stressors and events among all ages, such as college stress, transitional adjustment, and increased independence.

An independent t-test was completed to compare stress level across age groups. There were no significant differences, less than .400, in stress level of current stress level among dance and team sports groups. A mean of 5.5 among dancers and 5 among athletes was discovered on a 7 point scale with 0 being no stress at all and 7 being very stressed. On the same 7-point scale, dancers rated their stress as 4.43 and athletes rated their stress 4.35 during high school. Prior to high school, dancers rated their stress as 3.29 and athletes rated their stress as 2.9 on the same scale. The differences between each group were not statistically significant. However, this research does indicate that across all groups, regardless of physical activity, there is high stress experienced throughout high school (See Figure 1).

Figure 1:



This study did not specify the differences between positive and negative stress. Therefore, our results may contain reports of both positive and negative stress. There is evidence gained from prior research that the beliefs that individuals hold regarding stress influences their mental and physical health (Laferton, Stenzel, & Fischer, 2016). Stress specifically occurs when an individual perceives environmental demands as exceeding their resources and is paired with their emotions, biological stress response, and coping behavior (Laferton et al., 2016). Society generally associates stress with negative outcomes. However, positive stress, or eustress, can provide an individual with motivation, focus, and energy (BioRics, 2015). Negative stress can occur when an individual feels they are unable to cope with the stressor which can result in fatigue, exhaustion, or burnout (BioRics, 2015). However, these results may indicate that a trend among college students, especially those participating in extra activities including athletes, is increased stress. Increased stress, in addition to other activities, may lead to burnout. The burnout experienced with increased stress can significantly affect athletes, and in particular to this study— college athletes.

Athlete burnout is considered a maladaptive cognitive-affective syndrome which is characterized by emotional and physical exhaustion, reduced accomplishment, and sport devaluation (DeFreese & Smith, 2014). High stress levels displayed through this study may indicate that participants have, had, or will experience burnout due to the demands of their activity choice in combination with stressors of college along with newly increased independence as young adults. To expand, many college students are facing various factors including increased responsibility, independence, living alone for the first time, adulthood, and separation from a secure support system. When predictable and unpredictable stressors build up

over a short period of time, and an individual cannot properly cope with the stress, this may lead to a stage of exhaustion for individuals (Burke, Trost, deRoon-Cassini & Bernstein, 2015)

Additionally there is no statistically significant association between body image satisfaction and satisfaction with exercise. This is displayed by testing the correlation through Pearson's r which is .25, a weak positive association. An explanation of this data may be that individuals have unique motivations behind their choice to exercise. Some individuals may put in more hours in exercising due to weight dissatisfaction and some individuals may be satisfied with their weight but feel they should exercise more to improve their overall health or efficiency in their sport or art.

The results of this study display that sports or dance are neither a protective nor a risk factor for stress levels. When asked if their chosen activity reduced their stress, dancers averaged 4.5 and athletes averaged 4.4 on a 7 point scale. On the same 7 point scale when asked if their activity increased their stress, dancers reported 3.93 and athletes reported 3.65. This displays that dancers and athletes do not report their stress being affected positively or negatively by their chosen activity, suggesting that the common stressor among respondents centers around college. The physical, mental, and emotional stressors that are experienced throughout the college environment may suggest that participants in this study experience higher stress levels due to their current environment.

An additional hypothesis around the chosen activity of the participants not affecting their stress levels may be that females are encouraged by society to express stress outwardly and therefore relieve their stress through expressions such as talking to support systems, crying, or seeking professional help. Gender roles in society often deem women as more caring, nurturing,

and emotional due to their ability to bear children (Burke et al., 2015). Therefore, women are accepted in society to express their internalizing emotions outwardly due to this acceptance. However, since males are often physically larger and stronger they are seen as strong, protective, and providing within society (Burke et al., 2015). In conclusion, participants in this study may express their stress vocally rather than relying on their physical activity to express their stress. Therefore, their chosen activity has a neutral effect on their stress size.

Future research

Future researchers may consider including a non-athlete group in comparison with those participating in team sports and dance. This inclusion would allow the researcher to include comparisons among stress levels, body satisfaction, and exercise satisfaction among team athletes and dancers and non athletes who share the common variable of being college students.

Additional research may include the same survey given to Division I athletes and dance teams due to the different intensity and pressure that are placed on division I student athletes. Division I schools often fund their athletes and dancers and have the ability to be increasingly selective regarding their choices for these teams. By researching this component of additional pressure and intensity the results to this study may be different.

Studying different regions may also provide different results to this study. This study was administered to Division II schools located in New England. This study done in a southern location may produce different results regarding stress. Participants in northern locations may be exposed to seasonal depression occurring within cold weather and a faster paced way of life than southern locations. Therefore the differences in region may also produce different results.

Limitations

Despite thorough research regarding this subject matter, appropriate survey questions, and a sufficient number of survey respondents, there are a few limitations to this study.

Limitations of this study may include the inability to properly recall stress level from middle school or high school. To expand, stress level during high school may be rated lower than actually felt due to comparison to current stress levels of college which hold different types of stress than high school including increased responsibility and independence.

Additionally, this survey was given prior and during midterm testing in the college semester. Therefore, perceptions of stress may be increased due to the increased workload and academic stressors experienced during this period. However, academic stressors may still vary among participants as some may not have had strong academic stressors during this period.

Finally, the small sample size may be a limitation for this study. The sample size contained 14 dancers and 19 athletes due to removal of 3 participants. A larger sample size would be preferred to create a higher confidence level and increase the probability of finding statistically significant evidence among the survey questions.

Overall, dance and team sports show no significantly significant evidence of protecting against stress. However, this study instead suggests that stressors from college such as an increased responsibility, independence, and physical separation from an individual's support system may be increasing stress. Furthermore, the physical, mental, and social health benefits of team sports and dance are generally beneficial to one's overall health and implementing these activities is encouraged. (WHO, 2014; Jewett et al., 2014; Bajek et al., 2015)

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Appendix A

Survey Questions

Answered by all:

What is your age?

(18, 19, 20, 21, 22, 23)

What is your major?

(write-in option)

How do you identify your gender?

(Male, Female, Other)

Do you dance or participate on a team sport?

(Dance, Team Sport, Both)

Answered by those that participate in team sports:

What team sports do you play at the collegiate level (check all that apply)?

(Soccer, Field Hockey, Volleyball, Basketball, Softball, Lacrosse, Track/Cross Country, Swimming, Other)

What team sports have you participated in from childhood to high school (check all that apply)?

(Soccer, Field Hockey, Volleyball, Basketball, Softball, Lacrosse, Track/Cross Country, Swimming, Other)

What grade level did you start playing team sports?

(K-12th)

What grade level did you start playing the sport(s) you play at the collegiate level?

(K-12th)

Answered by dancers:

When did you start participating in dance classes?

(2yrs-12th)

How many years have you danced with a group or team?

(1yrs-21yrs)

Did you dance competitively or recreationally?

(Yes or No)

How intense was your dance training?

(1-15 hrs a week)

What type of collegiate level dance do you participate in?

(Team, Company, Club, Private Training)

Answered by all:

Answer the following questions on a scale of 1-7, 1 being none, 4 somewhat, and 7 very.

How would you rate your current stress level?

How would you rate your stress level prior to highschool?

How would you rate your stress level during high school?

How would you rate your satisfaction with your exercise level?

How would you rate your satisfaction with your body image?

How effective is your chosen team activity on reducing your stress level?

Does your chosen team activity increase your stress level?